

Linking Hong Kong Secondary Students' School Belongingness with Pre-School Characteristics, School Experiences, and Out-of-Class Experiences

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Abstract: Framed with the model of Cashmore et al. (2011), this study examined the pattern of school belongingness of Hong Kong students with their pre-school characteristics, school experiences, and out-of-class experiences using PISA 2015 data. The total sample included 4703 Hong Kong secondary school students aged 15. Regression analysis revealed that Hong Kong secondary students' school belongingness was predicted by pre-school characteristics, school experiences, and out-of-class experiences. Compared with two other categories of variables, out-of-class experiences had a stronger prediction in terms of peer relationships. Overall, family socioeconomic status (SES), student performance, self-motivation, student-teacher ratio, and peer relationship were positive predictors, whereas school size was negatively predictive. In addition, the relationships of school belongingness with three categories of variables differed by immigrant status. Immigrant children had a greater sense of school belonging than local students. The findings add to the existing literature and may have implications for school administrators and teachers in relevant areas.

Keywords: Secondary students; School belongingness; Hong Kong; PISA

Introduction

The importance of belonging needs in human society and the potential academic, motivational, and emotional benefits have attracted substantial interest in students' sense of school belonging. Extensive research on students' sense of school belonging agrees that when this perceived psychological need is met, beneficial academic, motivational, and emotional results occur (Ahmadi et al., 2020; Arslan, 2021; Giddens, 1991; Hagerty et al.,

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1992; Osterman, 2000). Numerous studies have demonstrated that a variety of factors, including the individual-level differences such as personality and family background, school-level effects, such as school size and urbanicity, as well as students' interpersonal relationships and experiences, can all influence and predict their sense of belonging (e.g., Ahmadi et al., 2020; Anderman, 2002; Cashmore et al., 2011; Tinto, 1975).

Although school belongingness has attracted the interest of western scholars, few related studies have been undertaken in Hong Kong. As an immigrant city, Hong Kong's student population is culturally diverse. Chinese immigrant students make up about half of the population, while non-Chinese immigrant groups from South Asia make up 5% (Yuen, 2013). Since 2012/2013, the Hong Kong Education Bureau reports about 21,811 new Chinese immigrants in elementary schools and 18,038 in high schools (Education Bureau, 2018). In the process of adapting to the school environment, immigrant students face academic challenges, such as a language barrier (Cheung & Hui, 2003), mental health issues (Yuen, 2013, 2016), and identification issues (Cogan & Derricott, 2000; Yuen, 2010). In light of this, examining students' sense of school belonging and its associated determinants in Hong Kong may add new perspectives to the issue. This research aims to comprehensively analyze Hong Kong secondary students' school belongingness and its influential factors.

School Belongingness

Belongingness is a critical psychological desire referring to the need to connect oneself to surroundings (Hagerty et al., 1992). Individuals are pleased, contented, and peaceful when they feel included in a community. In contrast, anxiety, depression, sorrow, jealousy, and loneliness may accompany group rejection, alienation, or disrespect (Baumeister & Leary, 1995). School belongingness is particularly

significant for adolescents in educational settings to avoid pathological and long-lasting consequences (Osterman, 2000). Resnick et al. (1997) found a negative relationship between school belongingness and teenagers' mental distress, aggression, drug addiction, and sexual engagement. Besides, students' sense of belonging can shape their identities and how teenagers describe school experience (Sanders & Munford, 2016). Being different (Donald, 2013) and being excluded (Giddens, 1991) are two major risks for coherent and positive identities in schools. Moreover, school belongingness may impact students' expectations and understanding of educational values (Harter, 1987; Ryan et al., 1990), which can, in turn, improve academic motivation (Fuller et al., 1982) and promote academic achievement (Goodenow, 1993). Hence, this research is necessary to identify contributing factors to Hong Kong students' school belongingness.

Demographical/Pre-school characteristics.

Gender may be a potential factor since Arhar and Kromrey (1995) found that female students had a strong connection to their teachers and schools than their male fellows. Previous research also links students' immigration status to their psychological school support and involvement. For example, Cheung and Hui (2003) found that mainland immigrant students felt more connected to their school than indigenous Hong Kong students. They argued that the specific schools selected, and the conscious principals and teachers might partially account for this result. Moreover, family structure and SES may impact students' school belongingness, particularly in the low SES schools. Students from middle-upper class families and those with two parents seem to have a higher sense of school belonging (Arhar et al., 1995).

School experiences. School is the institution with which students are most familiar, and school impacts on belongingness might vary depending on school characteristics (Ahmadi et al., 2020; Anderman,

2002; Cashmore et al., 2011; Maestas et al., 2007). Anderman (2002) found that grade configuration affected students' school belongingness, as students from a higher level of grade configuration had a stronger sense of school belonging. Their results were consistent with some previous research findings (Anderman & Kimweli, 1997; Simmons & Blyth, 1987). School size and student-teacher ratio also matter. However, there are some inconsistent results in previous studies. In terms of school size, Baumeister and Leary (1995) stated that smaller schools would connect students and form a more cohesive school environment, while Rumberger and Thomas (2000) argued that larger schools would produce more benefits. Regarding the student-teacher ratio, Barrett (2003) found that students who attended schools with higher student-teacher ratios seemed to be more pleased than those in schools with lower student-teacher ratios. Nevertheless, other research has linked high student-teacher ratios to more bullying, disorder, and low school participation and belongingness (DeFur & Korinek, 2010; Manning & Saddlemire, 1996; Waasdorp et al., 2011).

School administration and classroom organization also affect school belongingness (Anderman, 2002; Maestas et al., 2007). Empathetic and supportive teachers may help foster a sense of belonging (Hoffman et al., 2002). Students who perceive their teachers as fair and courteous are more self-efficient and attached (Ryan & Patrick, 2001). Classroom organization (Blum et al., 2002) and perceived classroom comfort (Hoffman et al., 2002) may also affect students' sense of school belonging since poorly managed classrooms are often associated with a lack of connectedness (Anderman, 2002; Freeman et al., 2007).

Additionally, academic results can determine school belongingness. Numerous studies have shown that higher-achieving and motivated students feel a stronger sense of school belonging and acceptance

than their less successful peers (Anderman, 2002; Cashmore et al., 2011). Students who value effort and mastery tend to feel more connected and less alienated at schools (Tinto, 1975; Anderman, 2002). Besides, students' social engagement and active participation in school are positively associated with their sense of school belonging (Cemalcilar, 2010).

Out-of-class experiences/social integration. Students' attachment to peers, teachers, and parents may impact their school integration and sense of belonging. Hoffman et al. (2002) found that perceived peer support, teacher support, and isolation are all related to school belongingness. Some research highlighted the role of peer relationships in belongingness. Because healthy, trusting, and caring friendship can help adolescents accomplish academic goals and adapt to school (Nelson & DeBacker, 2008). On the contrary, bullying and other negative or aggressive social interaction will lower students' academic aspirations and sense of school belonging (Glew et al., 2005). Moreover, parental involvement may also promote school belongingness, academic adjustment, and accomplishment. (Kuperminc et al., 2008).

The Present Study

Despite extensive research, inconsistent findings exist (Anderman, 2002). Therefore, it is necessary to build a holistic structural model with multiple predictors of school belongingness. Achievement of this, this study used the revised Tinto's model of school belongingness (Cashmore et al., 2011). Tinto (1975) proposed that students' characteristics, family backgrounds, prior experiences, and institutional commitments influenced their satisfaction and engagement. The model suggests that increasing commitment is the outcome of the interplay between institutional structural factors and students' academic and social integration processes. Better integration may strengthen commitment, and commitment can,

in turn, encourage more integration. Cashmore and her co-authors (2011) refined Tinto's model to assess students' sense of school belonging and persistence, which included individual characteristics (e.g., family backgrounds, capabilities, gender), school experiences (e.g., academic achievement, teacher-student interaction), and out-of-class experiences (e.g., school engagement, peer relationship, parental involvement).

Despite extensive studies on school belongingness, few targeted Hong Kong students. Although some previous studies about Hong Kong students' identification (e.g., Yeh et al., 2008; Yuen, 2008, 2010, 2013), these studies focused on ethnicity and culture. In other words, there is a lack of studies investigating Hong Kong students' school belongingness and its determinants. Besides, previous research rarely compared variations in school belongingness across the immigrant status. To bridge this research gap, we chose Hong Kong students as our sample and examined their school belongingness across the immigrant status. Using publicly available PISA data, this research aims to investigate the factors that affect Hong Kong students' school belongingness to construct a thorough analysis in the Hong Kong context. By developing a more comprehensive understanding of students' school belongingness, schools, teachers, and parents may more effectively identify students' diverse demands and offer resources and services to meet those needs. Based on the

rationale, two research questions are proposed as follows:

RQ1. In what way are pre-school characteristics, school experiences, and out-of-class experiences associated with students' school belongingness in Hong Kong?

RQ2. Do the relationships of school belongingness with pre-school characteristics, school experiences, and out-of-class experiences vary across the immigration status in Hong Kong?

Based on the model of Cashmore et al. (2011), it is expected that pre-school characteristics predict Hong Kong secondary students' school belongingness (e.g., gender, immigration status, and family SES), school experiences (e.g., school size, student-teacher ratio, self-motivation, and GPA), and out-of-class experiences (e.g., peer relationship and parental involvement) (see Figure 1). Secondly, it is hypothesized that the effects of these predictors on school belongingness vary across Hong Kong students' immigration status.

Methodology

Data Source and Participants

This study used PISA 2015 data, conducted by the Organization for Economic Cooperation and Development (OECD). PISA is a standardized test in mathematics, reading, and science administered to 15-year-old students in the participating countries

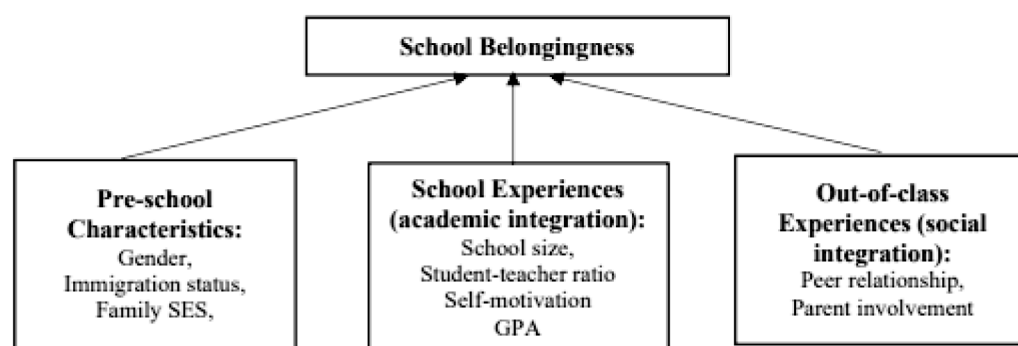


Figure 1. The conceptual framework

and regions. After data cleaning, this study comprised 4703 15-year-old adolescents from 113 schools with a valid response rate of 87.8% ($N=5359$). Among the 4703 students, 50.2% were female, 49.8% were male, 76.5% were born in Hong Kong, and 23.5% were born in other regions or countries.

Measures

School belongingness. A 6-item scale from the student questionnaire was employed to measure school belongingness. Students were asked to assess and report their agreement using a 4-point Likert scale on six items, such as “I feel like an outsider at school” and “I feel like I belong at school.” This study reversed the score of the negative items. The Cronbach’s α value for these six items was 0.783, Showing good internal consistency.

Pre-school variables. Family SES was assessed by the variable of the index of economic, social, and cultural status (WLE) from the student questionnaire. In terms of immigration status, following Cattaneo and Wolter (2012)’s suggestion, this study used the student’s country of birth to define immigrant students.

School experiences. This study included four school experience variables: school size, student-teacher ratio, self-motivation, and academic achievement. Self-motivation was measured by a 5-item 4-point Likert scale from the student questionnaire. Students were asked to assess and report their agreement with items like “I want top grades in most or all of my courses” and “I want to be the best.” The higher the self-motivation score, the more eager the students were to achieve higher academic scores. The Cronbach’s α value for these eight items was 0.832, showing satisfying reliability. In terms of academic achievement, this study generated GPA by taking the logarithm of the average math, reading, and

science achievement score.

Out-of-class experiences. Peer relationship was assessed by the 8-item 4-point Likert scale from the student questionnaire. Students were asked to report their agreement about how they get along with their peers, such as “I prefer working as part of a team to working alone,” “I enjoy seeing my classmates be successful,” and “I enjoy cooperating with peers.” This study generated the variable “Peer Relationship” by taking the means of these eight items. This scale also had good reliability with the Cronbach’s α value, 0.853. To measure parental involvement, this study employed the 4-item scale from the school questionnaire. This scale asked school staff to report the proportion of students’ parent participation in school-related activities.

Data Analyses

SPSS 25.0 was used for data analysis. We analyzed the missing variables at first (see Table 1). We replaced some of the missing values with mean substitution procedures (Buhi et al., 2008; Dodeen, 2003). We excluded the missing data for immigrant status, SES, and parent participation due to the large coefficient of variance. Concerning school size and student-teacher ratio, since the missing rates were not high, we directly deleted the missing data in these two variables.

After the data cleaning process, descriptive statistics of all pre-school variables were calculated to show the demographical distribution. Multiple regression was employed to test the main research hypothesis. First, regression analysis was conducted among the total sample ($n=4703$) to assess the first research hypothesis. Second, the regression was run among two groups, immigrant students and local students, to compare the path coefficients across the immigrant status.

Table 1 Missing variable analysis

	N	Mean	SD	Coefficient of Variance	Missing		No. of Extremes ^a	
					Count	Percent	Low	High
School belongingness	5268	2.89	0.48	0.17	91	1.7	178	80
Gender	5359	0.50	0.50	1.00	0	0	0	0
Immigrant	5189	0.76	0.42	0.55	170	3.2	0	0
SES	5244	-0.56	0.94	-1.68	115	2.1	79	50
School size	5246	6.70	0.28	0.04	113	2.1	188	62
Student-teacher ratio	5136	13.60	2.16	0.16	223	4.2	148	0
Self-motivation	5271	3.14	0.58	0.18	88	1.6	89	0
GPA	5359	534.88	80.03	0.15	0	0	186	59
Peer relationship	5273	3.01	0.47	0.16	86	1.6	161	207
Parental involvement	5123	32.66	19.92	0.61	236	4.4	0	365

*Numbers of cases outside the range (Mean - 2*SD, Mean + 2*SD).

Results

Descriptive Statistics

Findings showed that 50.2% of the respondents were female, while 49.8% were male. In terms of immigrant status, 76.5% (n=3597) were born in Hong Kong, and 23.5% (n=1106) were born in other regions or countries. For family SES, 68.5% were from family SES index less than 0, 31.5% were from family SES index more than 0. On average, concerning school belongingness, participants showed a relatively high sense of school belonging (M=2.89/4.00, SD=0.485).

The Test of The First Research Hypothesis

This section estimated and compared the potential independent variables from three categories, pre-school characteristics, school experiences, and out-of-class experiences, to test their associations with school belongingness. A series of three linear regression models were used to explore the relative contribution of each factor to the prediction of students' school belongingness. The baseline model (Model 1) tested the predictions of pre-school characteristics on school

belongingness. Model 2 and Model 3 then added variables related to school experiences and out-of-class experiences separately.

Table 2 indicated that Model 1 could only explain a few variances of school belongingness (Adjust R²=0.014). When holding other things constant, no association between students' gender and school belongingness was found ($p>.05$). Students' immigration status ($p<.05$) and family SES ($p<.001$) predicted their school belongingness statistically significantly at a weak level. The results showed that students born in Hong Kong had lower school belongingness than those born outside of Hong Kong.

In Model 2, when including school experiences, the model showed more variances. When considering school experiences, the immigration status had no significant prediction on school belongingness. Family SES was still predictive of school belongingness ($\beta=.101$, $p<.001$). As for school experiences, school size ($\beta=-.059$, $p<.01$), student-teacher ratio ($\beta=.070$, $p<.001$), self-motivation ($\beta=.108$, $p<.001$) and GPA ($\beta=.048$, $p<.001$) were all significant predictors

Table 2: Multiple regression of Hong Kong students' school belongingness (n=4703)

	Model 1		Model 2		Model 3	
Variable	B (β)	SE	B (β)	SE	B (β)	SE
Constant	2.940	.018	2.207	0.326	.823	0.310
Gender	.019 (.019)	.014	.007 (.007)	0.014	.005 (.05)	0.013
Immigration status	-.033* (-.029*)	.017	-.031 (-.027)	0.017	-.037* (-.032*)	0.016
Family SES	.063*** (.123***)	.008	.052*** (.101***)	0.008	.041*** (.080***)	0.007
School size			-.103** (-.059**)	0.034	-.097** (-.055**)	0.032
Student-teacher ratio			.016*** (.070***)	0.004	.013*** (.060***)	0.004
Self-motivation			.092*** (.108***)	0.012	.035** (.041*)	0.012
GPA			.146** (.048**)	0.049	.226*** (.073***)	0.046
Peer relationship					.357*** (.343***)	0.014
Parental participation					-0.001 (-.022)	0.000
F	23.954		23.207		89.437	
Adjusted R square	0.014		0.032		0.145	

Note: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

on school belongingness. It should be noted that school size was negatively predictive of school belongingness, consistent with Baumeister and Leary (1995)'s findings. On the contrary, the student-teacher ratio was a positive predictor, consistent with Barrett (2003)'s study. Moreover, self-motivation and GPA significantly positively predicted school belongingness.

When out-of-class experiences were added in Model 3, school belongingness could be explained by 14.5% of the total variances. In other words, out-of-class experiences were stronger predictors of school belongingness than pre-school characteristics and school experiences. As seen in Table 2, controlling all the other variables, the effects of family SES, self-motivation, school size, and student-teacher ratio decreased but were still statistically significant. However, the effect of students' immigration status on their school belongingness became stronger as

the coefficient was now statistically significant at the level of 5% ($p < .05$), which meant that keeping other things constant, students born in Hong Kong had lower school belongingness than their peers born outside of Hong Kong by 0.038. In Model 3, family SES, student-teacher ratio, self-motivation, GPA, and peer relationship were all significantly positive predictors of school belongingness. School size still inversely predicted school belongingness. Moreover, peer relationship was the strongest predictor of students' school belongingness ($\beta = .343$, $p < .001$). However, contrary to earlier research, there was no link between parental involvement and students' school belongingness. In summary, the first research hypothesis was affirmed to some degree.

The Test of The Second Research Hypothesis

To assess the second research hypothesis, this study ran Model 4 across immigrant groups. Local

students were served as the reference group. Table 3 indicated significant differences in the path coefficients of self-motivation, GPA, and peer relationship on school belongingness across the immigrant status. The predictions of GPA ($\beta=.082$, $p<.001$) and peer relationship ($\beta=.351$, $p<.001$) on school belongingness were stronger among immigrant students than those among local students (GPA: $\beta=.043$, $p>.05$; peer relationship: $\beta=.314$, $p<.001$). Self-motivation significantly predicted school belongingness among local students ($\beta=.085$, $p<.01$); however, its prediction was not significant among immigrant students. It seems that as for school experiences, local students' school belongingness was mainly predicted by self-motivation, school size, and student-teacher ratio, except GPA, while GPA strongly predicted immigrant students' school belongingness. Meanwhile, peer relationships had a stronger prediction on immigrant students' school belongingness than on local students' school belongingness. Therefore, the second research hypothesis was supported.

Discussion and Limitation

As mentioned above, there is a lack of studies investigating Hong Kong students' school belongingness and its determinants. Using publicly accessible PISA data for Hong Kong students, this study evaluated the extent to which Hong Kong students' disparities in school belongingness can be explained by the three categories of variables, namely pre-school characteristics, school experiences, and out-of-class experiences. The first research hypothesis that Hong Kong secondary students' school belongingness is predicted by pre-school characteristics, school experiences, and out-of-class experiences can be accepted. Among these predictors, family SES was the most influential pre-school characteristic; school size, student-teacher ratio, self-motivation, and GPA were all significant school-related predictors; and peer relationship was the greatest contributing factor on Hong Kong students' school belongingness. Besides, out-of-class experiences explained more variances than the other two categories of variables. The second

Table 3: Multiple regression of Hong Kong students' school belongingness across the immigrant status

Variable	Local students (n=3597)		Immigrant students (n=1104)	
	B (β)	SE	B (β)	SE
Constant	1.819	0.637	.511	0.359
Gender	.023 (.025)	0.027	-.002	0.015
Family SES	.035* (.080*)	0.014	.043*** (.080***)	0.009
School size	-.167* (-.101*)	0.069	-.081** (-.045**)	0.037
Student-teacher ratio	.019* (.093*)	0.009	.012*** (.060*)	0.005
Self-motivation	.068** (.085**)	0.024	.026 (.030)	0.014
GPA	.126 (.043)	0.089	.255*** (.082*)	0.054
Peer relationship	.325*** (.314***)	0.030	.366*** (.351***)	0.016
Parental participation	-0.001 (-.026)	0.001	-0.001 (-.021)	0.000
F	23.197		78.265	
Adjusted R square	0.139		0.032	

Note: * $p<0.05$, ** $p<0.01$, *** $p<0.001$

research hypothesis that these predictions on Hong Kong secondary students' school belongingness vary across the immigration status was also verified. Distinctive variables predicted local students' and immigrant students' school belongingness. For example, for local students, self-motivation was more predictive than GPA, whereas, for immigrant students, their school belongingness was more likely to be predicted by GPA and peer relationships. The following paragraphs explain the findings in detail.

To begin, for the variables related to students' pre-school characteristics, it was discovered that students' immigration status and family SES were both positively associated with their school belongingness. In contrast, students' gender had no relationship with their school belongingness. In terms of immigration status, students born outside of Hong Kong had higher school belongingness than their Hong Kong-born counterparts. This may counter the widely held belief that immigrant children experience more academic, social, and psychological difficulties (Yeh et al., 2008; Yuen, 2010). Immigrant students tend to regard themselves as outsiders in their host community, resulting in a diminished sense of belonging (Yuen, 2008; Yuen, 2010). Due to Hong Kong's high degree of social inclusion, schools, administrators, and instructors may be fully aware of the possible obstacles faced by immigrant students and provide enough academic or psychological assistance to help them participate in school activities. This may explain some of the differences in student immigration status, according to Cheung and Hui (2003). Our findings showed that gender had no impact on students' school belongingness, contrary to previous literature that female students are more connected to their teachers and schools than males due to psychological differences (Arhar & Kromrey, 1995). This result merits further future investigation.

Students from affluent families are more likely to have a higher sense of school belonging. Family

SES refers to the resources, such as financial support, cultural capital, and quality parenting that students can access from their families. These family resources will significantly impact how students interact with schools. According to Arhar and colleagues (1995), students from middle-upper class families seem to have a greater capacity to establish school belongingness. On the contrary, it would be more difficult for students from low SES families to develop a deep relationship with schools.

In addition, schools are venues where students get qualifications and the sites for students to have interactions to build or enhance their sense of belonging (Sanders & Munford, 2016). For the variables related to students' school experiences, student-teacher ratio, GPA, and self-motivation positively impacted school belongingness. However, school size had a negative effect on students' school belongingness. In terms of the student-teacher ratio, past research found no consistent relationship between ratio and school belongingness (Barrett, 2003; DeFur & Korinek, 2010). While other factors remained constant in this study, raising the student-teacher ratio increased school belongingness. It may be assumed that students engage more actively in a high-student-to-teacher ratio school. Concerning school size, school size was found to be negatively associated with students' school belongingness in Hong Kong educational settings, indicating that students would feel more connected in a smaller school. Giddens (1991) and Donald (2013) found that when students were in a large and diverse school environment, they generated feelings of exclusion. This may explain the benefits of small schools, which can provide students with more opportunities to interact with teachers and peers. Such a more intimate school environment further improves students' sense of school belonging.

As an internal attribute, motivation guide students to perceive study experience from a more positive perspective, thus, establishing more school

belongingness (Cashmore et al., 2011). There is a bidirectional positive interaction between students' self-motivation and school belongingness. School belongingness influences students' expectations and their perception of academic ideals and promotes their academic motivation and success (Fuller et al., 1982; Harter, 1987; Ryan et al., 1990). In terms of performance, GPA positively predicts school belongingness. A high GPA enables students to develop a positive self-concept, which improves their school belongingness. In turn, students with a stronger sense of school belongingness are more engaged in school and accomplish more (Ciarrochi et al., 2007). The results confirm prior findings that higher GPA students create greater school belongingness (Cashmore et al., 2011).

Furthermore, for out-of-class experiences, peer relationships were positively associated with school belongingness, but not parental involvement. In fact, among all estimated outcomes, peer relationships had the greatest significant positive association with students' school belongingness. School interactions with peers are vital for students. As Nelson and DeBacker (2008) stated, a healthy, trustworthy, and caring friendship may help students acclimatize to school life and subsequently boost their study motivation and academic achievement. Students' connection to their peers in the school community might potentially influence their integration and sense of belonging. In terms of parental involvement, no link was observed between students' parental involvement and their school belongingness. As previously shown, more parental involvement will lead to stronger school belongingness (Kuperminc et al., 2008). However, it is worth noting that, given the limitation of our data, it is difficult to determine whether parental participation correlates with Hong Kong students' school belongingness. The finding still needs further investigation.

Finally, the differences in the group comparison

by Hong Kong students' immigrant status revealed valuable findings as well. In contrast to their native counterparts, whose sense of school belonging was significantly influenced by self-motivation, immigrant students' sense of belonging was not associated with motivation but was significantly influenced by school academic success. In the receiving society, the status of immigrants may be seen as a sign of social classification (Jiang & Liang, 2021). Immigrant students need to find ways to blend into the school culture. Otherwise, they may be perceived as school outsiders (Yuen, 2008). Academic performance is critical for immigrant students to get recognition in schools, particularly in the East-Asian cultures that place a premium on academic accomplishment. The findings are consistent with previous studies on immigrant students (e.g., He & Fischer, 2020) and studies on the culture-specific nature in East Asia (e.g., Yu & Yang, 1994).

In terms of out-of-class experiences, immigrant students were somewhat more affected by peer relationships than local students. Those with better relationships with local students showed the highest school belongingness, indicating that immigrant students were more concerned with peer recognition in schools. These findings corroborate the observations from previous studies in Hong Kong (e.g., Chan et al., 2020; Yuen, 2010). Prior research has identified the strong influence of local peers in shaping immigrant students' sense of school belonging. For example, the connection with school forges when immigrant students participate more actively in extracurricular activities with their local schoolmates. As a consequence of higher school involvement and well-established peer connections, immigrant students can assimilate into the school culture, receive peer cognition, and develop more sense of school belonging. These determinants of immigrant students' school belongingness need special consideration, given the large influx of immigrants into Hong

Kong in the globalized era. Being aware of those predictors enables schools and educators to understand immigrant students' identity and belongingness better, fulfill their needs, and enhance their sense of belonging to the hosting society. Schools and teachers should make greater efforts to organize extracurricular school activities and cultivate amicable interactions between local and immigrant students in order to assist them in fostering positive school experiences. In addition, more attention should be paid to the academic challenges and barriers faced by immigrant students to improve their academic achievement as well as the sense of school belonging.

The present study is limited by the fact that it is based on PISA 2015 and so only represents the perspectives of 15-year-old Hong Kong students' school belongingness, rather than larger and targeted

groups. A second limitation is that the authors selected and reconstructed the PISA questions rather than create their own. PISA questions may not cover all study issues on students' sense of belonging, and data may lose accuracy throughout transformation and reorganization. Besides, although the authors used a comprehensive framework to examine students' school belongingness, some other factors are equally crucial for students' belongingness and may not be included in the analysis. Despite these limitations, the current findings still have implications by providing a comprehensive analysis of secondary students' school belongingness and its influential factors in Hong Kong. Future research may further investigate the predictors of students' school belongingness across a wider variety of age groups and geographical locations.

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